

**IN THE CLAIMS**

Claim 1. (Original) A computer-implemented method for monitoring variations in the film build thickness of workpieces on which a film build process has been performed, comprising the steps of:

- 1                   measuring the film build thickness of a group of workpieces, the
- 2 group comprising at least two subgroups of workpieces, each subgroup including at
- 3 least two workpieces;
- 4                   calculating the range of the film build thickness measurements of
- 5 each subgroup, each range comprising the difference between the greatest thickness
- 6 measurement and the least thickness measurement of the subgroup;
- 7                   selecting data from at least two of said subgroups having the
- 8 smallest of the calculated ranges; and
- 9                   monitoring variations of the film build thickness of subsequent
- 10 workpieces coated in the film build by processing the data from the selected subgroups.

- 1           2. (Original) A method as defined in claim 1, including the step of calculating
- 2 upper and lower control limits from the calculated ranges of the selected subgroups.

- 1           3. (Original) A method as defined in claim 1, including the step of calculating
- 2 upper and lower control limits for the film build process after each group of 20
- 3 subgroups has been measured.

1           4.     (Original) A method as defined in claim 1, including the step of calculating  
2     upper and lower control limits after the film build thickness of each additional subgroup  
3     has been measured, and including the latest 20 subgroups for selecting the subgroups  
4     having the smallest of the calculated ranges.

1           5.     (Original) A method as defined in claim 1, including the step of measuring  
2     the film build thickness of the corresponding surface area on a group of similar  
3     workpieces.

1           6.     (Original) A method as defined in claim 1, including the step of measuring  
2     the film build thickness of the corresponding surface area on a group of similar  
3     workpieces that have been coated with a film in the same painting booth.

1           7.     (Original) A method as defined in claim 1, including the step of measuring  
2     the film build thickness of the corresponding surface area on a group of similar  
3     workpieces that have been coated with a film in the same color group.

1           8.     (Original) A method as defined in claim 1, including the step of measuring  
2     the film build thickness of the corresponding surface area on a group of similar  
3     workpieces that have been coated within the same time frame.

1           9.     (Original) A method as defined in claim 1, including the step of calculating  
2     the change in quantity of film build material being used in the film build process by  
3     substituting new process control limits for existing process control limits, the new  
4     process control limits having been calculated from the ranges of the selected  
5     subgroups.

1           10.    (Original) A method as defined in claim 1, including the step of calculating  
2     the change in cost of film build material being used in the process by substituting new  
3     calculated process control limits for existing process control limits, the new process  
4     control limits having been calculated from the ranges of the selected subgroups.

1           11.    (Original) A method as defined in claim 1, including the step of calculating  
2     C<sub>pk</sub> based on the ranges of the selected subgroups.

1           12.    (Original) A method as defined in claim 1, including the step of calculating  
2     a film build average thickness from data selected from the selected subgroups.

1           13.   (Original) A method as defined in claim 9, including the steps of  
2   calculating the difference in  $C_{pk}$  for the new process control limits and the existing  
3   process control limits, and then calculating the change in film build material  
4   usage from the difference in  $C_{pk}$ .

1           14.   (previously presented) A computer-implemented method for  
2   monitoring variations in the film build thickness of workpieces on which a film  
3   build process has been performed, comprising the steps of:

4                   measuring the film build thickness of a group of workpieces,  
5   the group comprising at least two subgroups of workpieces, each subgroup  
6   including at least two workpieces;

7                   calculating the range of the film build thickness  
8   measurements of each subgroup, each range comprising the difference between  
9   the greatest thickness measurement and the least thickness measurement of the  
10   subgroup;

11                  selecting data from at least two of said subgroups having the  
12   smallest of the calculated ranges;

13                  monitoring variations of the film build thickness of  
14   subsequent workpieces coated in the film build by processing the data from the  
15   selected subgroups; and

16                  including the step of calculating  $C_{pk}$  based on the ranges of  
17   the selected subgroups.

15. (previously presented) A computer-implemented method for monitoring variations in the film build thickness of workpieces, based on process capability analysis on which a film build process has been performed, comprising the steps of:

measuring the film build thickness of a group of workpieces, the group comprising at least two subgroups of workpieces, each subgroup including at least two workpieces;

calculating the range of the film build thickness measurements of each subgroup, each range comprising the difference between the greatest thickness measurement and the least thickness measurement of the subgroup;

selecting data from at least two of said subgroups having the smallest of the calculated ranges; and

monitoring variations of the film build thickness of subsequent workpieces coated in the film build by processing the data from the selected subgroups; and

including the steps of calculating the difference in Cpk for the new process control limits and the existing process control limits, and then calculating the change in film build material usage from said difference in Cpk.

16. (canceled)

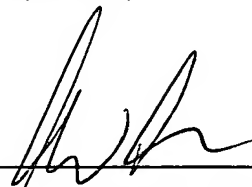
17. (canceled)

18. (canceled)

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Serial No.: 10/043,922

- 19. (canceled)
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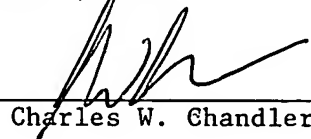
Respectfully submitted,



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CERTIFICATE UNDER 37 CFR 1.8 (a)

I hereby certify that the foregoing Response is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Fee Amendment, Commissioner of Patents and Trademarks, P.O. Box 1450, Alexandria, VA 22313-1450 on December 8, 2003.



Charles W. Chandler